

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/010719</b>	International filing date ( <i>day/month/year</i> ) <b>24.09.2004</b>	Priority date ( <i>day/month/year</i> ) <b>30.09.2003</b>	
International Patent Classification (IPC) or national classification and IPC <b>C23G1/06</b>			
Applicant <b>BASF Aktiengesellschaft</b>			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <b>9</b> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <b>4</b> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 

This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
 
  - international search (Rule 12.3 and 23.1(b))
  - publication of the international application (Rule 12.4)
  - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
 

the international application as originally filed/furnished  
 the description:  
 pages 1-27 \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 the claims:  
 nos. \_\_\_\_\_ as originally filed/furnished  
 nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19  
 nos.\* 1-14 received by this Authority on 08.06.2005 with letter of 07.06.2005  
 nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 the drawings:  
 sheets \_\_\_\_\_ as originally filed/furnished  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3.  The amendments have resulted in the cancellation of:
 

the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 

the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	<b>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>
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## 1. Statement

Novelty (N)	Claims <u>3–6, 8, 11–14</u>	YES
	Claims <u>1, 2, 7, 9, 10</u>	NO
Inventive step (IS)	Claims <u>4–5, 12–14</u>	YES
	Claims <u>1–3, 6–11</u>	NO
Industrial applicability (IA)	Claims <u>1–14</u>	YES
	Claims    _____	NO

## 2. Citations and explanations (Rule 70.7)

1.1 This report makes reference to the following documents:

D1: DE 877 394 C (BASF AG), 21 May 1953 (1953-05-21)

D2: DE 744 789 C (IG FARBENINDUSTRIE AG), 25 January 1944 (1944-01-25)

D3: US-A-3 030 311 (OAKES BILLY D), 17 April 1962 (1962-04-17)

D4: DE 15 21 764 A (GEN ANILINE & FILM CORP), 18 September 1969 (1969-09-18)

D5: US-A-5 215 675 (FUSIAK FRANK ET AL), 1 June 1993 (1993-06-01)

1.2 The following documents, which have not been cited in the international report, have been included in this communication and allotted the following numbers:

D6: DE 1939042 A (IMPERIAL CHEMICAL INDUSTRIES LTD), 12 February 1970 (1970-02-12)

D7: US-A-2802878 (DOW CHEMICAL CO), 13 August 1957 (1957-08-13)

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	<p>1.3 The applicant is advised that another examiner has taken over his file, since the examiner who was at first in charge of his file has retired.</p> <p>2. <b>NOVELTY</b></p> <p>2.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1, 7, 9 and 10 is not novel (PCT Article 33(2)).</p> <p>2.2 Document D6 discloses (the references in parentheses are to that document) a process for pickling metallic surfaces (and an acid pickling bath for ferrous metals) by treatment of the metallic surfaces with an aqueous acid preparation which contains an aqueous acid, in particular 1-20% hydrochloric acid, and 0.05 to 0.4% of a corrosion-inhibiting compound which is an alkine propoxylate (cf. page 4, paragraph 4 - page 5, paragraph 5; examples; claims 1 and 5-7).</p> <p>The subject matter of claims 1, 2, 7, 9 and 10 is thus not novel.</p> <p>2.3 The present application meets the requirements of PCT Article 33(1) because the subject matter of claims 12-14 is novel (PCT Article 33(2)); the available prior art does not disclose the present combination of technical features, in particular "that the aqueous preparation also contains (d) 0.01-10% by weight of at least one water-soluble,</p>

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at least bidentate chelating agent containing acid groups and/or of at least one water-soluble polymer which contains quaternised ammonium groups", in accordance with claims 12, 13 and 14.

The subject matter of claims 12-14 is thus novel.

2.4 The present application meets the requirements of PCT Article 33(1) because the subject matter of claims 3-6, 8 and 11 is novel (PCT Article 33(2)); the available prior art does not disclose the present combination of technical features, in particular "that the aqueous preparation also contains **(c)** 0.01-20% by weight of at least one surfactant", in accordance with claim 3; "that the composition further comprises 0.01-10% by weight of at least one water-soluble, at least bidentate chelating agent containing acid groups", in accordance with claim 4; "that the weight ratio of chelating agent to pickling inhibitor ranges from 5:1 to 1:10", in accordance with claim 5; "that the composition further comprises 0.01-10% by weight of at least one water-soluble polymer containing quaternised ammonium groups", in accordance with claim 6; "that the pH value of the composition ranges from 3 to 6", in accordance with claim 8; and "that the surface is the surface of a metal strip", in accordance with claim 11.

The subject matter of claims 3-6, 8 and 11 is thus novel.

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	<b>3. INVENTIVE STEP</b>
3.1	The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1-3 and 6-11 does not involve an inventive step (PCT Article 33(3)).
3.2	Document D6, which is considered to represent the closest prior art, discloses an acid pickling bath for pickling ferrous metals by treatment with an aqueous acid preparation which contains 1-20% hydrochloric acid and 0.05 to 0.4% of a polyoxyalkylene derivative of acetylene alcohols (such as alkine propoxylate) (cf. page 4, paragraph 4 - page 5, paragraph 5; examples and claims 1 and 5-7), from which the subject matter of claim 3 differs in that the aqueous preparation also contains 0.01-20% by weight of at least one surfactant.
3.3	The feature "0.01-20% by weight of at least one surfactant" defined in claim 3 is a conventional feature of metal pickling baths.
	The subject matter of claim 3 thus does not involve an inventive step.
3.4	Dependent claim 8 does not contain any features which, in combination with the features of any claim to which they refer, meet the PCT inventive step requirements, since its features are also conventionally used when pickling metals (see D6,

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	page 5, paragraph 2; claim 7).

The subject matter of claim 8 thus does not involve an inventive step.

3.5 The feature "the surface of a metal strip" consists only in the selection of a desired article, namely the **metal strip**. It thus represents only one of many obvious possibilities from which a person skilled in the art would select to solve the stated problem, according to the circumstances, without being inventive.

The subject matter of claim 11 thus does not involve an inventive step.

3.6 Document D4 (the references in parentheses are to that document) is regarded as the prior art closest to the subject matter of claim 6. It discloses the use of propargyl alcohol monopropoxyether (**alkine monopropoxylate**) as corrosion inhibitor in aqueous acid solutions (cf. example 2 and claims 1-3), preferably the use of an aqueous composition of alkine monopropoxylate and catalysts which are quaternary ammonium group-containing resins in hydroxyl form (i.e., quaternised ammonium group-containing polymers) (cf. page 4, lines 5-4). A person skilled in the art would thus consider the use of this preferred composition in the pickling path described in D1 a conventional aqueous composition for pickling baths.

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The subject matter of claim 6 thus does not involve an inventive step.

- 3.7 The present application meets the requirements of PCT Article 33(1) because the subject matter of claims 4, 5 and 12-14 involves an inventive step (PCT Article 33(3)).
- 3.8 Document D6, which is considered to represent the closest prior art, discloses an acid pickling bath for pickling ferrous metals by treatment with an aqueous acid preparation which contains 1-20% hydrochloric acid and 0.05-0.4% of a polyoxyalkylene derivative of acetylene alcohols (such as alkine propoxylate) (cf. page 4, paragraph 4 - page 5, paragraph 5; examples; claims 1 and 5-7), from which the subject matter of claims 12-14 differs in that the aqueous preparation also contains **(c)** 0.01-20% by weight of at least one surfactant, and **(d)** 0.01-10% by weight of at least one water-soluble, at least bidentate chelating agent containing acid groups, and/or of at least one water-soluble polymer containing quaternised ammonium groups.
- 3.9 The present invention can therefore be considered to address the problem of achieving an improved pickling inhibition.
- 3.10 The solution to this problem, as proposed in claims 4, 5 or 12-14 of the present application,

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involves an inventive step (PCT Article 33(3)) for the following reasons:

3.10.1 The chelating agents interact synergistically with the pickling inhibitor, i.e. the chelating agents, when used as additives for pickling acids, accelerate metal removal.

**4. INDUSTRIAL APPLICABILITY**

4.1 The subject matter of claims 1-12 meets the requirements of PCT Article 33(4) because the invention can be used for the surface treatment of metal surfaces.